

20 APR 2001

SEQUENCE LISTING

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tac ct Tyr Le 13	u His														493
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aca ct Thr Le 225							_		-		-		_		781
ttc ag Phe Se															829
gtt aa Val Ly															877
ccc tg Pro Tr															925
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Lys Ser Thr Gly Leu Glu Tyr Ala Ala Lys Phe Ile Lys Lys Arg Gln 35 40 45

Ser Arg Ala Ser Arg Gly Val Ser Arg Glu Glu Ile Glu Arg Glu
50 55 60

Val Ser Ile Leu Arg Gln Val Leu His His Asn Val Ile Thr Leu His 65 70 75 80

Asp Val Tyr Glu Asn Arg Thr Asp Val Val His Ile Leu Glu Leu Val 85 90 95

Ser Gly Glu Leu Phe Asp Phe Leu Ala Gln Lys Glu Ser Leu Ser 100 105 110

Glu Glu Glu Ala Thr Ser Phe Ile Lys Gln Ile Leu Asp Gly Val Asn 115 120 125

Tyr Leu His Thr Lys Lys Ile Ala His Phe Asp Leu Lys Pro Glu Asn 130 135 140

Ile Met Leu Leu Asp Lys Asn Ile Pro Ile Pro His Ile Lys Leu Ile 145 150 155 160

Asp Phe Gly Leu Ala His Glu Ile Glu Asp Gly Val Glu Phe Lys Asn 165 170 175

Ile Phe Gly Thr Pro Glu Phe Val Ala Pro Glu Ile Val Asn Tyr Glu 180 185 190

Pro Leu Gly Leu Glu Ala Asp Met Trp Ser Ile Gly Val Ile Thr Tyr 195 200 205

Ile Leu Leu Ser Gly Ala Ser Pro Phe Leu Gly Asp Thr Lys Gln Glu 210 215 220

Thr Leu Ala Asn Ile Thr Ser Val Ser Tyr Asp Phe Asp Glu Glu Phe 225 230 235 240

Phe Ser His Thr Ser Glu Leu Ala Lys Asp Phe Ile Arg Lys Leu Leu 245 250 255

Val Lys Glu Thr Arg Lys Arg Leu Thr Ile Gln Glu Ala Leu Arg His 260 265 270

Pro Trp Ile Thr Pro Val Asp Asn Gln Gln Ala Met Val Arg Arg Glu 275 280 285

Ser Val Val Asn Leu Glu Asn Phe Arg Lys Gln Tyr Val Arg Arg Arg 290 295 300

Trp Lys Leu Ser Phe Ser Ile Val Ser Leu Cys Asn His Leu Thr Arg 305 310 315 320

Ser Leu Met Lys Lys Val His Leu Arg Pro Asp Glu Asp Leu Arg Asn 325 330 335

Cys Glu Ser Asp Thr Glu Glu Asp Ile Ala Arg Arg Lys Ala Leu His $340 \hspace{1.5cm} 345 \hspace{1.5cm} 350$

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35 40 45

Ile Glu Arg Glu Val Ser Ile Leu Lys Glu Ile Gln His Pro Asn Val 50 55 60

Ile Thr Leu His Glu Val Tyr Glu Asn Lys Thr Asp Val Ile Leu Ile
65 70 75 80

Leu Glu Leu Val Ala Gly Gly Glu Leu Phe Asp Phe Leu Ala Glu Lys 85 90 · 95

Glu Ser Leu Thr Glu Glu Glu Ala Thr Glu Phe Leu Lys Gln Ile Leu 100 105 110

Asn Gly Val Tyr Tyr Leu His Ser Leu Gln Ile Ala His Phe Asp Leu 115 120 125

Lys Pro Glu Asn Ile Met Leu Leu Asp Arg Asn Val Pro Lys Pro Arg 130 135 140

Ile Lys Ile Ile Asp Phe Gly Leu Ala His Lys Ile Asp Phe Gly Asn 145 150 155 160

Glu Phe Lys Asn Ile Phe Gly Thr Pro Glu Phe Val Ala Pro Glu Ile 165 170 175

Val Asn Tyr Glu Pro Leu Gly Leu Glu Ala Asp Met Trp Ser Ile Gly 180 185 190

Val Ile Thr Tyr Ile Leu Leu Ser Gly Ala Ser Pro Phe Leu Gly Asp 195 200 205

Thr Lys Gln Glu Thr Leu Ala Asn Val Ser Ala Val Asn Tyr Glu Phe 210 215 220

Glu Asp Glu Tyr Phe Ser Asn Thr Ser Ala Leu Ala Lys Asp Phe Ile 225 - 230 235 240

Arg Arg Leu Leu Val Lys Asp Pro Lys Lys Arg Met Thr Ile Gln Asp 245 250 255

Ser Leu Gln His Pro Trp Ile 260

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Lys Cys Arg Gln Lys Gly Thr Gly Lys Glu Tyr Ala Ala Lys Phe Ile 20 25 30 Lys Lys Arg Arg Leu Ser Ser Ser Arg Gly Val Ser Arg Glu Glu
35 40 45

Ile Glu Arg Glu Val Asn Ile Leu Arg Glu Ile Arg His Pro Asn Ile
50 55 60

Ile Thr Leu His Asp Ile Phe Glu Asn Lys Thr Asp Val Val Leu Ile 65 70 75 80

Leu Glu Leu Val Ser Gly Glu Leu Phe Asp Phe Leu Ala Glu Lys
85 90 95

Glu Ser Leu Thr Glu Asp Glu Ala Thr Gln Phe Leu Lys Gln Ile Leu 100 105 110

Asp Gly Val His Tyr Leu His Ser Lys Arg Ile Ala His Phe Asp Leu 115 120 125

Lys Pro Glu Asn Ile Met Leu Leu Asp Lys Asn Val Pro Asn Pro Arg 130 135 140

Ile Lys Leu Ile Asp Phe Gly Ile Ala His Lys Ile Glu Ala Gly Asn 145 150 155 160

Glu Phe Lys Asn Ile Phe Gly Thr Pro Glu Phe Val Ala Pro Glu Ile 165 170 175

Val Asn Tyr Glu Pro Leu Gly Leu Glu Ala Asp Met Trp Ser Ile Gly
180 185 190

Val Ile Thr Tyr Ile Leu Leu Ser Gly Ala Ser Pro Phe Leu Gly Glu 195 200 205

Thr Lys Gln Glu Thr Leu Thr Asn Ile Ser Ala Val Asn Tyr Asp Phe 210 215 220

Asp Glu Glu Tyr Phe Ser Asn Thr Ser Glu Leu Ala Lys Asp Phe Ile 225 230 235 240

Arg Arg Leu Leu Val Lys Asp Pro. Lys Arg Arg Met Thr Ile Ala Gln 245 250 255

Ser Leu Glu His Ser Trp Ile 260

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Lys Cys Ile Lys Lys Asp Ser Gly Lys Glu Phe Ala Ala Lys Phe Met 20 25 30

Arg Lys Arg Arg Lys Gly Gln Asp Cys Arg Met Glu Ile Ile His Glu
35 40 45

Ile Ala Val Leu Glu Leu Ala Gln Asp Asn Pro Trp Val Ile Asn Leu 50 55 60

His Glu Val Tyr Glu Thr Ala Ser Glu Met Ile Leu Val Leu Glu Tyr 65 70 75 80

Ala Ala Gly Glu Ile Phe Asp Gln Cys Val Ala Asp Arg Glu Glu 85 90 95

Ala Phe Lys Glu Lys Asp Val Gln Arg Leu Met Arg Gln Ile Leu Glu 100 105 110

Gly Val His Phe Leu His Thr Arg Asp Val Val His Leu Asp Leu Lys 115 120 125

Pro Gln Asn Ile Leu Leu Thr Ser Glu Ser Pro Leu Gly Asp Ile Lys 130 135 140

Ile Val Asp Phe Gly Leu Ser Arg Ile Leu Lys Asn Ser Glu Glu Leu 145 150 155 160

Arg Glu Ile Met Gly Thr Pro Glu Tyr Val Ala Pro Glu Ile Leu Ser 165 170 175

Tyr Asp Pro Ile Ser Met Ala Thr Asp Met Trp Ser Ile Gly Val Leu 180 185 190

Thr Tyr Val Met Leu Thr Gly Ile Ser Pro Phe Leu Gly Asn Asp Lys 195 200 205

Gln Glu Thr Phe Leu Asn Ile Ser Gln Met Asn Leu Ser Tyr Ser Glu 210 215 220

Glu Glu Phe Asp Val Leu Ser Glu Ser Ala Val Asp Phe Ile Arg Thr 225 230 235 240

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Lys His Pro Trp Leu 260

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Gln Cys Ile Ser Lys Ser Thr Gly Gln Glu Tyr Ala Ala Lys Phe Leu 20 25 30 Lys Lys Arg Arg Gly Gln Asp Cys Arg Ala Glu Ile Leu His Glu
35 40 45

Ile Ala Val Leu Glu Leu Ala Lys Ser Cys Pro Arg Val Ile Asn Leu 50 55 60

His Glu Val Tyr Glu Asn Thr Ser Glu Ile Ile Leu Ile Leu Glu Tyr 65 70 75 80

Ala Ala Gly Gly Glu Ile Phe Ser Leu Cys Leu Pro Glu Leu Ala Glu 85 90 95

Met Val Ser Glu Asn Asp Val Ile Arg Leu Ile Lys Gln Ile Leu Glu 100 105 110

Gly Val Tyr Tyr Leu His Gln Asn Asn Ile Val His Leu Asp Leu Lys 115 120 125

Pro Gln Asn Ile Leu Leu Ser Ser Ile Tyr Pro Leu Gly Asp Ile Lys 130 135 140

Ile Val Asp Phe Gly Met Ser Arg Lys Ile Gly His Ala Cys Glu Leu 145 150 155 160

Arg Glu Ile Met Gly Thr Pro Glu Tyr Leu Ala Pro Glu Ile Leu Asn 165 170 175

Tyr Asp Pro Ile Thr Thr Ala Thr Asp Met Trp Asn Ile Gly Ile Ile 180 185 190

Ala Tyr Met Leu Leu Thr His Thr Ser Pro Phe Val Gly Glu Asp Asn 195 200 205

Gln Glu Thr Tyr Leu Asn Ile Ser Gln Val Asn Val Asp Tyr Ser Glu 210 215 220

Glu Thr Phe Ser Ser Val Ser Gln Leu Ala Thr Asp Phe Ile Gln Ser 225 230 235 240

Leu Leu Val Lys Asn Pro Glu Lys Arg Pro Thr Ala Glu Ile Cys Leu 245 250 255

Ser His Ser Trp Leu 260

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1 1 5 10 . 15

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Ala Ile Leu Thr Thr Met Leu Ala Thr Arg Asn Phe Ser
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Ala Phe Asn Ala Thr Ala Val Val Arg His Met Arg
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Leu Lys Ala Ala Val Lys Ala Val Val Ala Ser Ser Arg Leu Gly Ser
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